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**RE: TESTING OF (3) SAMPLES OF MUNCY 600 MM (24")
DIAMETER SMOOTHWALL TYPE 'S' POLYETHYLENE PIPE TO
AASHTO M294M-04 FOR THE ESC PROGRAM**

CONDITIONING: Not less than 40 hours at $23 \pm 2^{\circ} \text{C}$ (73°F)

TEST RESULTS:

SECTION 6.1 BASIC MATERIALS

Results:

SAMPLE	DENSITY (g/cm ³)	MELT INDEX (g/10 minutes)	CARBON
TRI/ENVIRONMENTAL	.950	.14	2.6
ADS	.951	.13	2.4

SPECIFICATION: Minimum Cell Class 335400C and SP- NCTL 15% 24 hours
Density .948 to .955 g/cm³
Melt index .15 to .40 g/10 min.
Carbon Black Content 2% minimum / 5% Maximum
*Compounds that have a higher cell classification in one or more properties with the exception of density are acceptable provided product requirements are met.

CONCLUSION: Specification is met.

SECTION 7.1 WORKMANSHIP

SAMPLE	RESULTS
TRI/ENVIRONMENTAL	Pass
ADS	Pass

SPECIFICATION: Free of foreign inclusions and visible defects. Inner liner shall be fused to outer corrugated wall at all internal corrugation crests.

CONCLUSION: Specification is met.

SECTION 7.2 PIPE DIMENSIONS
SECTION 7.2.2 WALL THICKNESS

SAMPLE	INNER WALL THICKNESS
TRI/ENVIRONMENTAL	0.110"
PRODUCTION	0.106"

SPECIFICATION: The minimum inner wall thickness requirement is 1.5mm (0.059")

CONCLUSION: Specification is met.

SECTION 7.2.3 INSIDE DIAMETER

SAMPLE	INSIDE DIAMETER
TRI/ENVIRONMENTAL	24.00"
ADS	24.04"

SPECIFICATION: Nominal inside diameter shall not exceed 4.5% oversize of 1.5% undersize and not more than 30mm oversize 591.0 mm / 627.1 mm (23.27" / 24.69")

CONCLUSION: Specification is met.

SECTION 7.4 PIPE STIFFNESS

Sample No.	Orientation	Pipe Stiffness kPa (PSI)
TRI/ENVIRONMENTAL	0 / 45 / 90	42 / 43 / 44
ADS	0 / 45 / 90	42 / 40 / 42

SPECIFICATION: The minimum pipe stiffness requirement at 5% deflection is 232 kPa. (34 PSI)

CONCLUSION: Specification is met.

SECTION 7.5 PIPE AND FITTINGS

SAMPLE	RESULTS
TRI/ENVIRONMENTAL	PASS
ADS	PASS

SPECIFICATION: No evidence of buckling, cracking, splitting or delamination when the vertical inside diameter is reduced by 20%

CONCLUSION: Specification is met.

SECTION 7.6 ENVIRONMENTAL STRESS CRACKING

Sample	Results
TRI/ ENVIRONMENTAL	PASS
ADS	PASS

SPECIFICATION: There shall be no cracking of the pipe

CONCLUSION: Specification is met.

SECTION 7.7 BRITTLENESS

Sample	Results
TRI/ ENVIRONMENTAL	PASS
ADS	PASS

SPECIFICATION: The pipe specimens shall not crack or split.
Five non-failure out of six impacts will be acceptable.

CONCLUSION: Specification is met.

SECTION 7.8 FITTING REQUIREMENTS

Sample	Results
TRI/ ENVIRONMENTAL	PASS
ADS	PASS

SPECIFICATIONS: Pipe connections shall not separate to create a gap exceeding 5mm.(0.197”) when measure between the bell and spigot portions of pipe fittings shall not crack or delaminate

CONCLUSION: Specification is met.

SECTION 11 MARKING

SAMPLE	MFG	SIZE	PLANT CODE	PRODUCTION DATE
TRI/ ENVIRONMENTAL	ADS	24" 600mm	G (MUNCY)	N/A
ADS	ADS	24" 600mm	G (MUNCY)	03/29/05

SPECIFICATION: Pipe and fitting shall be marked at intervals not more than 3.5mm, manufacture's name or trademark, nominal size, AASHTO M294, plant code and date of manufacture of appropriated code.

CONCLUSION: Specification is met.

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Quality Control Manager